

REMARKS

Status of the claims:

With the above amendments, claim 13 has been cancelled, claims 11 and 14 have been amended. Claims 1, 3-12, and 14 are pending and ready for further action on the merits. No new matter has been incorporated. The amendment to claim 11 has support at page 26, lines 4-6. The amendment to claim 14 has support at page 13, lines 21-23.

Rejections under 35 USC §§102/103

Claims 1, 3-6, 9, and 13 have been rejected under 35 USC §102(b) as being anticipated by, or in the alternative, under 35 USC §103(a) as being unpatentable over Malhotra '249 (US Patent No. 5,302,249). The Examiner asserts that recycled paper is disclosed in column 9 of Malhotra '249 and this recycled paper is essentially the same composition as that taught in the instant invention. This rejection is traversed for the following reasons.

Present Invention

The present invention discloses a composition and a method of making a paper of improved quality comprising a compound and

a pulp blend, wherein the pulp blend contains a deinked pulp in an amount of 10% or more by weight in a material pulp.

Disclosure of Malhotra '249

Malhotra '249 discloses a paper comprised of a supporting substrate with a coating comprised of a desizing component and a hydrophilic polymer. One of the embodiments in Malhotra '249 has paper comprised of a supporting substrate treated with desizing agents selected from the group consisting of (1) hydrophilic poly(dialkylsiloxanes); (2) poly(alkylene glycol); (3) poly(propylene oxide)-poly(ethylene oxide) copolymers; (4) fatty ester modified compounds of phosphate, sorbitan, glycerol, poly(ethylene glycol), sulfosuccinic acid, sulfonic acid and alkyl amine; (5) poly(oxyalkylene) modified compounds of sorbitan esters, fatty amines, alkanol amides, castor oil, fatty acids and fatty alcohols; (6) quaternary alkosulfate compounds; (7) fatty imidazolines; and mixtures thereof.

Removal of Malhotra '249

Malhotra '249 discloses a technology of obtaining **treated** paper by treating a paper sheet. (See column 6, lines 22-59). The "recycled paper" in column 6 to which the Examiner refers, corresponds to "a paper sheet" to be **treated**.

Malhotra '249 discloses treating the surface of a paper in order to improve the optical property of that paper surface. Malhotra '249 at column 11, line 64 to column 12, line 2 states: "The ink receiving **surfaces** . . . , generally the total thickness of the treatment layer is from about 0.1 micron to about 25 micron" (emphasis added).

In Example I, Malhotra '249 discloses a paper sheet that is produced (column 15, line 25 to column 16, line 13), then **treated** and evaluated (column 16, line 39 to 45). In Example II, Malhotra '249 discloses 10 sets of plain paper (column 17, line 7-50), that are **treated** and then evaluated (column 17, from line 57). In Examples III-XV, Malhotra '249 discloses the preparation of a paper, that is then **treated** and evaluated.

In contrast, the instant invention relates to a specific compound added to paper during the process of making paper.

Regarding claims 1, 3-6, and 9, "deinked pulp" (on page 2, line 10) is a material for making a paper. It does not refer to paper that is already made. Thus, the instant invention discloses a technology that is used when producing a paper sheet, (i.e., adding a specific compound during the paper making process) and not a technology for treating already made paper as is disclosed in Mahotra '249. The technology of the instant invention is to reduce the weight of a paper yet at the same time increase the paper's bulkiness.

Further, in the treatment of paper that is disclosed by Malhotra '269, the paper treatment is isolated on the surface. This is in contrast to the instant invention wherein because a specific compound is mixed before or during the paper making process, the obtained paper also has the specific compound not just on the surface, but also in the inside of the paper.

For the above reasons, it is submitted that Malhotra '269 cannot anticipate or render obvious the instant invention, because Malhotra '269 fails to disclose the elements of the instantly claimed invention. In particular, Malhotra '269 does not disclose treating the paper during or before the paper making process. Accordingly, it is submitted that the rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

Rejections under 35 USC §112, second paragraph

Claims 11, 12 and 13 have been rejected under 35 USC §112, second paragraph as being indefinite. The Examiner asserts that claims 11 and 12 are substantial duplicates of claim 10. Claim 11 has been modified to recite a more limited scope than claim 10. Accordingly, the rejection with respect to claim 11 is obviated. Withdrawal of the rejection is respectfully requested.

Regarding claim 12, this rejection is traversed. It is submitted that claim 12 is not a substantial duplicate of claim 10. Claim 12 is a "product" claim whereas claim 10 is a "method of making" claim. These two different statutory classes of claims are not substantial duplicates of each other. Withdrawal of the rejection is warranted and respectfully requested.

Claim 13 has been rejected as being a "use" claim, which is not recognized by U.S. practice. Claim 13 has been cancelled, rendering this rejection moot. Withdrawal of the rejection is respectfully requested.

Rejections under 35 USC §101

Claim 14 has been rejected under 35 USC §101 for reciting a use without any steps. It is believed that the Examiner meant claim 13. Because claim 13 has been cancelled it is believed that this rejection is moot. Withdrawal of the rejection is respectfully requested.

Claim Objections

Claim 14 has been objected to as being a substantial duplicate of claim 1. Claim 14 has been amended so that it is more limited in scope than claim 1. Withdrawal of the rejection is respectfully requested.

Conclusion

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

If any questions remain regarding the above matters, please contact Applicant's representative, John W. Bailey, in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 13 has been canceled.

The claims have been amended as follows.

11. (Twice Amended) A method for modifying a pulp sheet, which comprises internally adding a compound having the lyotropic degree as defined in Claim 10 of not less than 4%, before or in the paper making step into a pulp slurry to provide at least two of the properties (1) to (3) [as defined in Claim 10]

(1) improved bulky value of at least 0.02 g/cm³,

(2) improved brightness of at least 0.7 point, and

(3) improved opacity of at least 0.7 point to the pulp sheet.

14. (Twice Amended) A composition for improving paper making quality comprising;

a compound and a pulp blend, wherein

said pulp blend contains a deinked pulp in an amount of 10% or more by weight in a material pulp, and

said compound has a lyotropic degree as defined below of not less

than 4%, and

said compound provides at least two properties selected from the following paper quality improving properties (i) to (iii):

- (i) a standard improved bulky value of at least 0.02 g/cm³,
- (ii) a standard improved brightness of at least [0.5] 0.7 point, and
- (iii) a standard improved opacity of at least [0.5] 0.7 point;

and wherein the

$$\text{lyotropic degree (\%)} = (\alpha_0 - \alpha) / \alpha_0 \times 100$$

wherein α is the water content in a wet sheet obtained by

adding 5 parts by weight of the compound, which is the paper quality improver for the paper making to 100 parts by weight of the pulp blend and subjecting the pulp blend to papermaking; and

α_0 is the water content in a wet sheet obtained by

subjecting the pulp blend to papermaking without adding the compound to the pulp blend wherein said compound is added to the material pulp before a paper making step and wherein the compound is selected from the group consisting of (A) organosiloxane, (B) glyceryl ether, (C) acid salt of amine, (D) quaternary ammonium salt, (E) imidazole, (F) ester of polyhydric alcohol and fatty acid and (G) alkylene oxide-added ester being an ester derived from polyhydric alcohol and fatty acid and

having from more 0 mole to less 12 moles on average of C₂₋₄
alkylene oxide group per 1 mole of the ester.